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**Shutic et al.**

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(54) **CONTROLLING CYCLONE EFFICIENCY WITH A VACUUM INTERFACE**

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***B01D 35/16*** (2006.01)
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(52) **U.S. Cl.** ..... **55/315**; 55/431; 55/DIG. 46

(58) **Field of Classification Search** ..... 95/271; 55/DIG. 46, 432, 431, 424, 315; 118/326
See application file for complete search history.

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(57) **ABSTRACT**

Powder overspray that is extracted from a spray booth is recovered back to a powder supply that is used to supply powder to the spray guns inside the spray booth. The powder overspray extracted from the booth is separated from the high flow air stream by a separator such as a cyclone separator. The powder falls into a transfer pan and a vacuum is used to convey the powder from the transfer pan to a vacuum receiver. The powder is then discharged to the feed hopper in the feed center. The use of a vacuum to convey powder from the cyclone to the feed center in effect permits substantially all of the powder overspray to be recovered from the spray booth directly to the feed hopper with minimal dwell or residence time within the cyclone or vacuum receiver subsystems during a spraying operation. The receiver can be rotated for easy cleaning, and the vacuum line cleaned by one or more cleaning elements drawn through the vacuum line.

**27 Claims, 32 Drawing Sheets**